

Fast Track Math

Intervention Summary:

Fluency in Mathematics is an important trait for students to possess. Math fluency allows students to quickly complete simple Math facts so that they can begin to complete more complex tasks. This is a skill necessary for success in the classroom; without the skill, students may face failure. Fast Track Math intends to increase the speed and accuracy of math facts through peer tutoring, overcorrection and immediate feedback.

Materials Needed:

- Timer/Stopwatch
- Math Flashcards
- Red and Green construction paper circles
- Scratch Paper
- Pencil
- Poster saying “We’re on the Fast Track”
- Assessment probes
- Assessment probe answer keys

Procedure:

Obtaining Baseline:

To obtain baseline, create three math probes (A, B, and C) to administer to students, reflecting the math skills currently being taught (i.e. Addition, Subtraction, Multiplication, etc.). These probes can be created at interventioncentral.org. On three or more days, administer the probes to students, allowing them one minute to complete as many problems as quickly and accurately as possible. After the baseline data have been collected, plot the data along with the goal line on the chart and give to the teacher so he/she can plot the weekly progress monitoring data.

Intervention Steps:

1. Inform students they will be working in pairs to improve their math skills. Explain that they will improve they speed and accuracy through practice.
2. As the tutor and using a student volunteer as the tutee, demonstrate the following procedure:
 - a. Two sets of flashcards are distributed to each group, one for each member of the dyad, a red and a green circle, a timer/stopwatch and 6 assessment sheets.

- b. Set the timer/stopwatch for two minutes and begin showing the tutee the flashcards while the tutee answers verbally.
- c. When the tutee correctly answers a flashcard, say, "Correct!" and place the flashcard on the green circle.
- d. When the tutee incorrectly answers a flashcard, say "Incorrect, the answer is ____" and place the flashcard on the red circle.
- e. Upon answering a question incorrectly, the students stop the flashcards and the tutee writes the question and answer three times before beginning the flashcards again.
- f. These steps are continued until the timer/stopwatch reaches two minutes. If the tutor/tutee complete the set of flashcards before two minutes passes, students should begin flashcards that were placed on the red circle.
- g. When the two minutes have passed, the tutor and tutee are given one minute to independently complete the assessment probe that reflects the flashcards in the tutee's set of flashcards.
- h. After completing the first assessment probe, the tutor and tutee trade papers to grade each other's using the answer key provided.
- i. At this point the tutee becomes the tutor and the tutor becomes the tutee, and steps a-g above are completed again.
- j. After scoring the second assessment, a third one minute probe is administered to both the tutor and the tutee, this assessment contains neutral problems not directly from either set of flashcards.

Progress Monitoring:

At least once a week, give the students an additional math probe. Have the students work as quickly and accurately as possible for one minute to complete the probe. Chart the data on their bar graphs in their individual math folders. Calculate the class average problems-correct-per-minute and allow a student to record the progress on the racetrack chart so students can see the class improvement. Review the progress monitoring data each week. If the progress monitoring data points are below the goal line three times in a row, the intervention plan needs to be reviewed to determine if changes in the intervention or goal need to be made. Each time the intervention is implemented, the intervention implementation checklist should be completed to ensure the intervention was implemented with integrity.

Intervention Implementation Checklist

The purpose of this checklist is to maintain treatment integrity during the intervention.

- ☐ Two sets of flashcards, a stopwatch, 6 assessment probes, answer keys and green and red circles were administered to each dyad.
- ☐ Students answered flashcards for two minutes.

- ☐ Correct answers were placed on the green circle.
- ☐ Incorrect answers were placed on the red circle and the problems were written 3 times.
- ☐ Both students answered a one minute probe.
- ☐ Students grade each others' papers after the one minute probe.
- ☐ Students switched roles and followed all of the procedures listed.
- ☐ After completing the second probe, a third one minute probe was administered.

Alternate Ideas/Variations

This intervention works best at Tier 1, but could also be implemented as a Tier 2 or Tier 3 intervention. Any age population having difficulty with math fact fluency would benefit from this intervention. While this intervention is designed for improving math fluency, this intervention could also be used to improve sight word recognition and fluency.

Based On:

- Burns, M.K., Coddling, R.S., Boice, C.H., & Lukito, G. (2010). Meta-analysis of acquisition and fluency math interventions with instructional and frustration level skills: evidence for a skill-by-skill treatment interaction. *School Psychology Review*, 15(1), 69-83.
- Coddling, R.S., Baglici, S., Gottesman, D., Johnson, M., Kert, A.S., & Lebeouf, P. (2009). Selecting intervention strategies: using brief experimental analysis for mathematics problems. *Journal of Applied School Psychology*, 25(2), 146-168.
- Rhymer, K.N., Dittmer, K.I., Skinner, C.H., & Jackson, B. (2000). Effectiveness of a multicomponent treatment for improving mathematics fluency. *School Psychology Quarterly*, 15, 40-51